GEOGRAPHIC NEWS BULLETINS

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General Headquarters, Washington, D. C.

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ACRES OF COAL AT NORFOLK

(See Bulletin No. 1)

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Coal: Industry's Staff of Life

THE growing importance of petroleum does not eclipse the basic importance of coal in the life of the modern world.

That coal commands the attention of nations was shown recently when the League of Nations called representatives of European nations to a conference on coal. Mining and marketing of coal in Europe have not yet recovered from the disruption of the World War. The industry's difficulties have created serious problems for England and for other governments.

What coal means in the development of a country can best be understood perhaps by considering the case of Great Britain, but something of the importance of this fuel in the life of the entire modern world can be visualized easily enough by any American in sight of the trail of smoke left by a railway train or a steamship, or who can look upon a factory chimney.

Monks Shipped First Coal Used in London

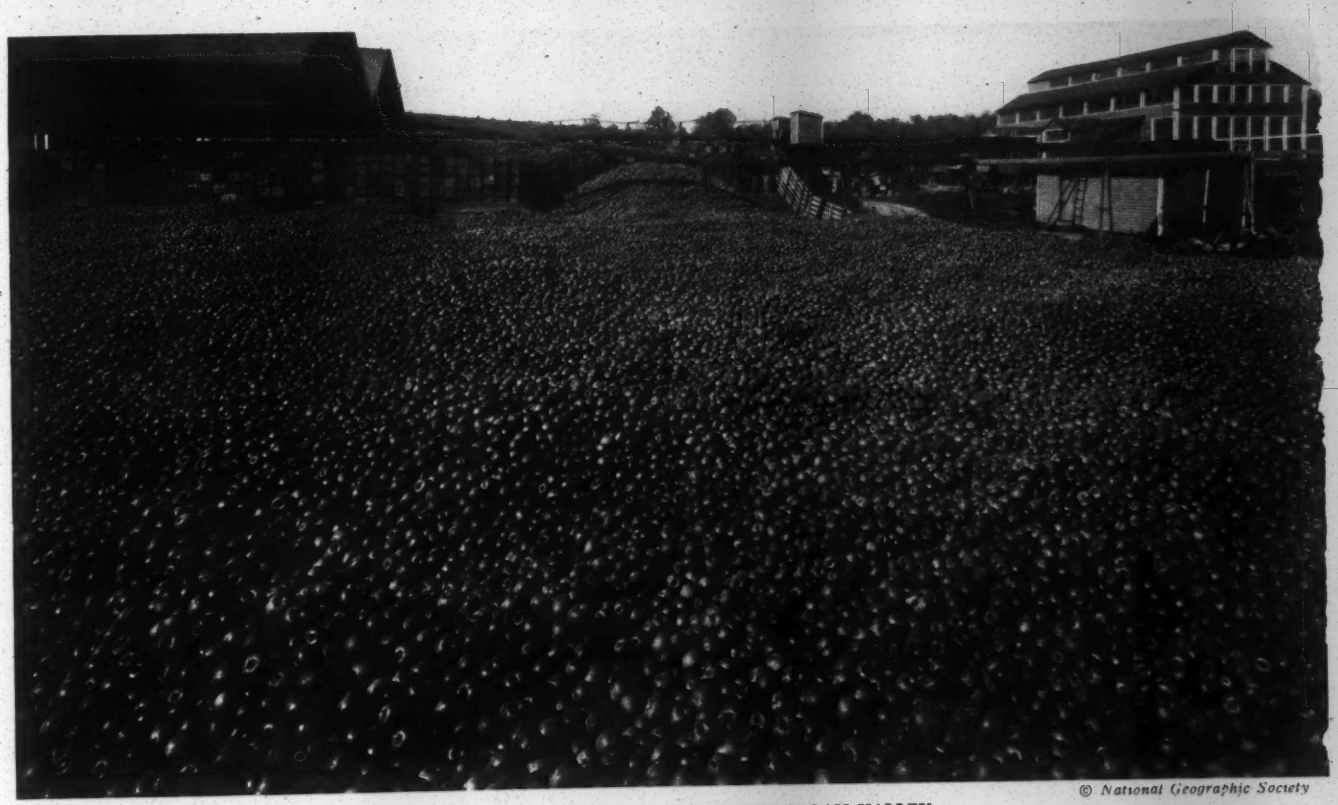
Nature's coal gifts to Great Britain were more bountiful than to any other European country; and it was in Scotland and England that Europe first saw the utilization of these "black rocks" on a considerable scale. It is believed that the smiths of ancient Greece used small quantities of coal in their forges, but later the fuel apparently dropped from use. The Roman legions in England burned coal in their camp fires, but do not seem to have introduced the fuel into Rome.

For the next 500 years coal was hardly mentioned in the records, but in 852 A.D. it was being used as fuel in several British monasteries. The first charter to mine coal in Great Britain was issued in Scotland in 1239, and thirty years later the fuel was being shipped to London in steady though small quantities by the monks of Tynemouth. But the use of this fuel did not spread rapidly to the rest of Europe. It was in 1295 that Marco Polo came back to Venice from China and astounded the Venetians with the assertion that the Chinese burned "black rocks."

During the next few centuries the use of coal for household heating and cooking and by smiths and other small industrialists grew steadily in England and Scotland and mine after mine was opened and worked in crude fashion. But it was not until after the invention of the steam engine in 1784 that coal mining became a basic industry. The effect of the steam engine was two-fold. On the one hand, it made possible the pumping of water from the mines and the easy raising of coal to the surface from even the deepest workings. On the other hand, it multiplied the fires to be fed with coal and thus greatly stimulated the demand for the fuel, not only in Great Britain, but all over Europe and in America and Australia.

The Staff of Industrial Life

To-day, especially in the temperate zones, coal is the staff of life for industry and modern civilization as truly as bread is the staff of our bodily life. Coal's contribution to transportation is apparent enough, but some of its other vital services are not so evident. As a matter of fact, nothing like life in great cities could have developed in the temperate zones but for the warmth given by coal. It was possible in the log cabin, village, and manor-house days to maintain warmth in winter by burning wood; but one can hardly imagine huge modern skyscrapers and theaters as well as city homes heated solely by wood, even if our forests could supply the millions of cords of logs necessary.



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A DELUGE OF APPLES IN THE SHENANDOAH VALLEY

These are only the culls of part of the Shenandoah Valley crop and will be turned into cider, vinegar and apple sauce. Millions of barrels of apples grown in western Virginia and West Virginia are shipped annually to Great Britain and France. (See Bulletin No. 4).

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Wiesbaden: Where the Last British Soldiers Leave the Rhine

WITH the departure of 150 British soldiers from Wiesbaden the last of the "Tommies" have left the Rhine where England has maintained her part of the Allied guard for eleven years.

Their departure does not mean that foreign soldiers will no longer be seen at Wiesbaden, because the French took over the British command. Final withdrawal of the British troops was part of the program by which 25,000 soldiers of the Allies left the Rhine in the last few months.

Wiesbaden, as its name indicates, is a German Spa, a Saratoga Springs of Europe.

Visitors Come in Droves During the "Season"

No matter from what direction you approach Wiesbaden, you pass through modern, wide, clean streets, lined with modern buildings, or spacious parks, traversed by tree-arched promenades. It is not until you reach the center of the city that you find yourself in crooked, canyon-like byways of Wiesbaden's younger days. Even the old streets are fringed with shops displaying merchandise of recent manufacture.

There was a settlement on Wiesbaden's site before the Christian era. During the early centuries A.D. a Roman fortress was built there to stem the advance of German hordes southward. But there are only slight reminders of a long history in the city to-day.

Normally Wiesbaden has slightly more than 100,000 inhabitants, but when the season (April to October) opens, railroad trains and autos, victorias and airplanes deposit thousands of visitors until, when the influx of newcomers is computed at the end of the season, they number more than twice the normal population.

Many Springs Attract Sufferers to Town for Cure

There are fifty or more springs at Wiesbaden where sufferers from gout, rheumatism and neuralgia seek relief. And the overplump, in search of reduced waistlines, join the parade. Inside the palatial bath houses, the baths range from the common tub baths to sand, mud, hot air, electricity and steam baths. You can comfortably lounge in rooms and even "bathe" your lungs with mists of mineral water.

All Wiesbaden visitors are not there for the "cure." True, gouty feet, rheumatic body members, and neuralgic heads impel many visitors, but Wiesbaden, nestling among the forests and vineyards of the Rhine Valley, about 3 miles from the Rhine River, is also popular among healthy vacationists.

Golf balls whiz over the numerous courses, tennis balls curve over numerous nets, automobiles tour the surrounding roads which penetrate picturesque villages nearby, and forest trails ring with the laughter of happy-go-lucky hikers.

Fine Mansions Were Once Occupied by Wealthy Russians

The Wiesbaden boulevards and streets, some tree-lined, are flanked with mansions that would enhance the beauty of any city. Many of these mansions, set amid spacious, tree-studded lawns and terraces, the guides will tell you, were occupied by

So it is with light. Modern street lighting and the lighting of office buildings and dwellings could not be carried on but for gas or electricity, and both imply in most cases the burning of coal or a coal product.

Coal, in large part, makes the construction of our buildings possible. It bakes bricks, burns lime and cement, and enters into the manufacture of steel. It melts glass and smelts copper, and its pitch waterproofs our cellars and covers our roofs.

Coal Is Sunlight Bottled a Million or More Years Ago

The distillation of coal opened up a whole new chemical world. Thousands of new chemical compounds have been built up from substances distilled out of a lump of coal—all the colors of our clothes and draperies and ornaments; powerful explosives; fertilizers; oils and fuels; a sweetener for our foods; a gas for our balloons; and invaluable substances for use by the sanitary engineer, the surgeon, and the physician.

What is coal? It is stored-up sunlight. When we burn coal to heat our homes to-day we are in effect "uncorking" the warmth of the sun that streamed down on our world a million or more years ago. The sunlight became "bottled" by causing the growth of vegetation into woody fiber. According to the most widely accepted theory, this vegetable matter—the trunks, twigs, leaves and fruits of trees and smaller plants—fell into water and muck which preserved it from decay.

Later the beds of vegetable material were covered by mud or sand and underwent chemical alteration under pressure, gradually changing to the substance we call coal. Under the microscope, the imprints of leaves and the existence of woody fiber can be found to-day in some specimens of coal. The type, or what is technically called the "rank" of coal, depends on the amount of chemical change that has taken place. Peat is the beginning of coal; lignite or brown coal has progressed further in the concentration of carbon; in soft coal the original vegetable matter has changed still more; while, in hard anthracite, coal of the highest "rank" has been reached.

The true coal that the world uses to-day was laid down probably millions of years ago. It was formerly believed that the vegetable matter accumulated as a result of rank growth in a hot, steamy climate. More recently, the view has been advanced that climatic conditions during the deposit of coal materials were only a little milder than at present. This mild climate was probably world-wide, as the presence of large coal beds in the polar regions seems to indicate. Coal materials are accumulating to-day in every peat-bog and in many swamps. Many of the peat-bogs are in regions close to the Arctic and Antarctic.

U. S. Leads World in Coal Supplies

In total known coal deposits, the United States leads all the world. It is probable, in fact, that this country has more than half of the world's coal. It also leads all other countries in the amounts mined and consumed annually. China ranks next in coal supplies, but her vast stores of potential energy have not yet been utilized to any great extent. Great Britain has large supplies of coal, especially in relation to her area.

One important economic factor that has served to give Great Britain an almost unbreakable hold on the overseas coal trade is that her mines lie within a few miles of salt water. Another factor is that Great Britain's exports are chiefly of relatively light manufactured goods which makes it profitable for the same ships to carry coal as ballast. On return trips the ships carry relatively heavy raw materials. As a result Great Britain has long held the coal trade of the coasts of the Baltic, France, Spain, and many of the Mediterranean countries, and also supplies much of the coal imported into South America.

Note: For a detailed account of coal mining, accompanied by numerous illustrations showing mining operations, see "Coal—Ally of American Industry," by W. J. Showalter, *National Geographic Magazine*, November, 1918. Other illustrations of coal mining and coal handling can be found by referring to the semi-annual indices placed in bound volumes of *The Geographic* usually available in libraries.

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They Lived Three Years on a Sun-blistered African Mountain

FOR three years home was a corrugated iron house on top of a sun-blistered, solitary mountain in an arid country for W. A. Hoover and Mrs. Hoover, their four-year-old daughter and Fred A. Greely, a fellow scientist, who have just returned to the United States from South West Africa.

Killing a charging leopard with a 22-caliber rifle, Mr. Hoover declared, was the most exciting adventure of their lonely post. The ringhals cobra incident was a close second. The cobra spit poison in Mr. Hoover's face.

Mr. Hoover was field leader of the National Geographic Society expedition in cooperation with the Smithsonian Institution to establish a solar radiation observatory on top of Mt. Brukkaros, a dead volcano of South West Africa.*

Baby Daughter Lived at Lonely Mountain Top Observatory

Betty, Mr. and Mrs. Hoover's daughter, was one and one-half years old when they went out to establish the observatory. Now she is four. A flock of chickens, a dog and a cow were her only playmates for three years.

The Hoovers and Mr. Greely were relieved by Louis O. Sordahl and Mrs. Sordahl and A. G. Froiland, who arrived at Mt. Brukkaros to carry on the work of "shooting the sun" six times a day.

The work of the expedition was to set up an observatory which would make reports similar to those made by Smithsonian Institution solar observatories in Chile and at Table Mountain, California. The three observatories on three continents are reporting daily variations in the heat of the sun that reaches the earth. Every activity on the face of the earth is dependent on the sun's radiation, the variation of which is the subject of this study.

Nearest Grocery Store Was 61 Miles Away

While individuals are only conscious of such variation in radiation as earth itself brings about through the procession of the seasons, evidence of the variation in the strength of the sun itself is not far to seek. Smithsonian authorities think there is a definite connection between variation in solar radiation and changes of weather. The observatory Mr. Hoover established on Mt. Brukkaros, South West Africa, may some day help warn Chicago of a coming drop in temperature.

At Brukkaros the Hoover party lived 2,000 feet up a mountainside and 61 miles from a grocery store. The nearest white man, a German missionary, lived 8 miles away. Their nearest neighbors were Hottentots, whose beehive houses dotted the plain. Because the observatory stands within a Hottentot reservation, Mr. Hoover had to get permission to hunt springbok from the local chief of the Hottentots, who is known as Captain.

Isolated on a dry mountain, surrounded by African natives, the expedition was nevertheless in constant touch with civilization. The Government of South West Africa, which built the 3-room corrugated iron home on the rocky mountain top, ran a telephone line connecting with Keetmanshoop, the nearest town. A radio, a Christmas gift from the National Geographic Society, brought them cable news of the United States and the rest of the world via the station at Cape Town, although static interfered in warm weather.

*"Hunting an Observatory," by C. G Abbot, *National Geographic Magazine*, October, 1926.

wealthy Russians during the days of the Tsars, but the new era in Russia forced the sale of some of these show spots.

The Kurhaus, on the edge of one of Wiesbaden's spacious parks, is a feature of the city's life. Beyond its pillared doorway are magnificent ballrooms, a 15,000-person capacity theater, and reading rooms, all richly decorated. There one may hear opera equal to that of Berlin, and excellent orchestras play at all hours of the day and evening.

Bulletin No. 2, January 13, 1930.

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THE MOUSE TOWER STANDS BY THE RHINE NOT FAR FROM WIESBADEN

Terrace upon terrace of vineyards rise up the hills flanking the Rhine. It is disappointing to learn that modern historical research has found no truth in the story that the wicked Bishop Hatto, a grain profiteer of olden days, was eaten by rats in the Mouse Tower.

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Breaking the Geographic Law Against "Carrying Coals to Newcastle"

"CARRYING coals to Newcastle" is an old saying.

Carrying steel to Pittsburgh or carrying hats to Danbury, Connecticut, could be the American adaptation of it.

The saying has been looked upon as the popular expression of a geographic law. But American manufacturers have made the old saying a ridiculous piece of misinformation. They carry many "coals" to many "Newcastles," and sell them, too. They are successfully marketing products in countries that have long been famous as producers of THE SAME PRODUCTS.

Apple Blossom Time in Normandy, but U. S. Sells France Apples

Of course, foreign countries are doing the same thing in the United States.

Apple blossom time in Normandy is no hindrance to the sale of thousands of boxes of American apples in France. The United States also sells perfumes and raisins to France, the home of flower farms and vineyards; hops and sausage to Germany, home of beer and frankfurters; and fertilizers to Chile, the world's chief source of natural nitrates.

Peru is the original home of quinine. Yet quinine leads the list of American medicinals worth $400,000 imported into Peru annually from the United States, a country in which cinchona trees do not grow.

In the Dominican Republic and the British West Indies flourish the "chocolate" trees that supply nearly 100,000,000 pounds of cacao to the United States annually. To each the United States sells 9,000 pounds of chocolate every year, perhaps with the same chocolate ingredient the United States bought from them. To Cuba, "Sugar Bowl of the Antilles," American merchants send annually more than a million and a half pounds of confectionery.

Sell Chinaware to China, Prepared Milk to Holland

"Carrying coals to Newcastle"—and chicle to Mexico. Chicle comes from Mexico, nearly 10,000,000 pounds per year. And, as soon as American factories can mix it, and flavor it, and roll it, and wrap it, they send 275,000 pounds back as chewing gum to Mexico to be sold for about $150,000.

United States exporters sell chinaware to China; prepared milk to the dairy land of Holland; rubber goods in British Malaya, the home of rubber; flour in Canada; silk hosiery and rice in Japan; soap to the Philippines, our chief source of copra for soap-making; and binding twine to Mexico, the home of sisal, from which binding twine is made.

Jute has been raised successfully only in India. The United States buys millions of yards of jute cloth to sack potatoes and wrap cotton bales. Out of the jute which America bought one recent year, it resold 169,000 pounds of gunny sacks to India!

Sometimes it is a synthetic coal tar product which competes with some "Newcastle" specialty. Thymol is an important tooth paste constituent. It was extracted from the ajowan tree of India until chemists began to make it in laboratories. Now the United States markets dentifrices with synthetic thymol in India, the home of natural thymol.

A Leopard in the Chicken House

The second year the observatory staff received the mechanical parts of an electric refrigerator. They built a refrigerator around this unit. Thereafter ice cream was served on the volcano top. The refrigerator also preserved vegetables, fruit and meat, so that the 122-mile journey to the grocery store and back might be made less frequently. A gasoline engine, which was brought up the mountainside, piecemeal on donkey back, and a generator supplied current for the refrigerator.

"A man setting up a solar radiation observatory has to be a Jack-of-all-trades," says Mr. Hoover. "Greely and I were carpenters, plumbers, mechanics, electricians, and farmers alternately."

"One night we heard noises that sounded like a lion," he said, telling about the leopard, "and next morning three of our chickens were missing. Then we suspected our visitor to have been a leopard and the following night set a big trap. The leopard got into the trap, but went off, trap and all.

"Next morning we trailed him and finally located him in a crevice. I fired, wounding the leopard, which at once leaped toward us. We were on a ledge. The animal just barely missed the ledge and, as it tumbled down the rock, Greely fired and killed it. Although neither of us was injured, the experience taught us never to go after leopards with a 22 rifle."

The Snake That Spit Poison at Mr. Hoover

The ringhals cobra, a snake that grows to 6 feet in length, was a frequent visitor at the Mt. Brukkaros observatory. More than half a dozen were killed near the house. Snake bite serum is kept in the ice box at all times. Once a cobra coiled itself on the front porch. Another time, as Mr. Hoover entered the storehouse, he felt moisture on his cheek and looked up to see a ringhals cobra lying above the door. The snake had spit its poison at him. He ran out, got his gun, and killed the snake.

The ringhals cobra shoots its venom and also injects it with the fangs. The poison shot through the air is not dangerous to humans unless it gets into the eyes.

The expedition kept an auto truck in a "garage" halfway up the mountain. Every ten days someone would drive to Keetmanshoop for supplies and mail. On these trips the driver always took a "black boy" to walk back in case of accident. The Hottentots have no use for work, but they do not consider walking work. Fifty miles in a day they consider a nice jaunt. Hence the emergency "black boy" on the truck.

When Mr. Hoover broke an axle in the sand of a dried-up river, the Hottentot servant trudged off 20 miles for help.

At other times this dry river was a raging torrent and on one occasion cut the party off from Keetmanshoop for six weeks.

Brought Water up Mountain 1,200 Feet Twice a Day

Getting water and supplies up the mountain proved a great trial. Mt. Brukkaros was chosen because of the lack of rain. The roof-cistern system yielded some water, but not enough for the family and the cow. Two loads of water daily were brought 1,200 feet up from a water hole on donkey back.

Taking of observations generally occupied the morning from soon after sun up until 9 or 12 o'clock. The rest of the day was spent in computing the results obtained by three instruments, each different. The computations require six hours or more.

The intricacy of the computations may be judged from the fact that once the data for six film exposures of solar radiation intensity have been taken, the figures have to be corrected for depth of the atmosphere, ozone, water vapor, dust in the air, absorption in the mirror reflection, absorption in the black strip used in the instruments, and absorption in the prisms.

At Brukkaros the expedition had on an average of 240 clear days per year.

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Why Turkey Threatens to Turn Back Letters Addressed to Constantinople

THE Turkish Government has threatened to refuse delivery to letters addressed "Constantinople" or "Byzance."

The name is Istanbul, the government insists, and foreigners must learn the correct title of the famous port.

Has Not Been Constantinople to the Turks for 400 Years

Not for 400 years has Constantinople been Constantinople to the Turks. It is Istanbul to them. Some geographical title experts hold that Istanbul has been abbreviated by the Turks from Constantinople just as they abbreviated Thessalonike to Selanik. There are two other contentions. One is that Istanbul is a corruption of a phrase which the Turkish invaders heard the Greeks say, "ees teen poleen," which means "to the city." Another supposition is that "islam," meaning "true believing," and "bul," meaning "copious," have been welded together by the Turks into Istanbul, "abounding in the true Moslem faith."

Emperor Constantine, for whom Constantinople was named centuries ago, did not himself give it that name. On May 11, 330 A.D., Constantine called together a mass meeting in the newly completed Hippodrome. It was a ceremony of rejoicing. A new city had been built, destined to succeed Rome, which had been the capital of the Roman Empire for eleven centuries. At the high point of the Hippodrome pageant Constantine dedicated the city to Christianity and named it Nova Roma.

It was the Greeks who called it Constantinoupolis, and, finally, it became Constantinople. The patriarch of the Greek church still signs his title "bishop of Constantinople, New Rome," but Nova Roma was forgotten. So was the original name, Byzantium, for King Byzas, a local ruler, who first built a town on the Golden Horn Peninsula.

Constantinople Produced Much That Western Civilization Treasures

Turks have had other affectionate names for Constantinople just as Americans call New York, Father Knickerbocker. Sometimes the Turks call it Oummoudunia, "the Mother of the World," and sometimes Islambol, "the City of Islam." Another name is Der el Saadet, "the City of Felicity." Arabs call it by a name which is significant, El Farruch, "the Earth Divider."

Many treasures of Western civilization are associated with the name Constantinople. The Justinian code, which is the foundation of modern law, came out of Constantinople. The Byzantine Christian church architecture of Constantinople influences church design to this day. The city by the Bosporus (Bogaz ici) was the treasure house of ancient manuscripts which have given us nearly all we know about the glory that was Greece. And, finally, Constantinople is a name revered by Christian peoples because it honors Constantine, first emperor of the Roman Empire to favor Christianity above paganism.

Note: See also "Beside the Bosporus, Divider of Continents," *National Geographic Magazine*, October, 1929; "Skirting the Shores of Sunrise," December, 1926; "Constantinople Today," June, 1922, and other articles on the city listed in the Cumulative Index to the *National Geographic Magazine*.

Bulletin No. 5, January 13, 1930.

Bulgaria, famous for its beans, welcomes a "Newcastle" type of trade triangle. Frugal, bean-growing peasants buy hard, white beans from the United States and sell their own superior quality beans to other European nations for a higher price.

During the English coal strike the United States shipped 10,000,000 tons of coal to England, and some of it actually went to Newcastle, the Scranton of Britain.

Bulletin No. 4, January 13, 1930.

To Teachers: In geography and history the names and deeds of the great explorers often come up. The romantic adventures and the important accomplishments of three great explorers have already been published in the *National Geographic Magazine:* "Columbus of the Pacific" (Capt. James Cook), January, 1927; "Pathfinder of the East" (Vasco da Gama), November, 1927, and "The World's Greatest Overland Explorer" (Marco Polo), November, 1928. Each of these articles is illustrated with photographs of modern scenes of the places they visited and also numerous historical pictures. Included among The National Geographic Society's pictures suitable for school room decoration are "Columbus at La Rabida," "Boyhood of Sir Walter Raleigh" and "Vasco da Gama." All are in color.

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CHILEANS LOADING DRIED NITRATE INTO CARS

Chile has long been a major source of nitrate, which is an important element in fertilizers used by farmers all over the world. Although the United States imports large quantities of nitrate from Chile it also exports prepared fertilizer to Chile for sale to Chilean farmers.

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SANCTA SOPHIA, FAMOUS CHRISTIAN CHURCH OF ISTANBUL, WHICH IS NOW A MOSQUE

To thousands who have never even heard of the city's battered walls, and who have never formed a mind-picture of the romantic Bosporus, the name of this venerable structure is a familiar sound. Its confused and shapeless pile is bounded by four massive minarets and encased in gigantic buttresses.